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EXAMINER	
DUBRULE, C	

ART UNIT	PAPER NUMBER
1813	

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DATE MAILED: 05/18/92

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☒ Responsive to communication filed on 1/3/92 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), ___ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice re Patent Drawing, PTO-948.
3. ☒ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, Form PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1-46 are pending in the application.
   Of the above, claims 2-5, 7-10, and 20-46 are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1, 6 and 11-19 are rejected.
5. ☐ Claims _____ are objected to.
6. ☒ Claims 1-46 are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed on _____, has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

15. The Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 1813.

16. Applicant's election with traverse of group I in Paper No. 6 is acknowledged. The traversal is on the ground(s) that although the inventions may be distinct, a search for all groups, particularly groups I, II and VII, would not pose a serious burden upon the examiner. Applicants contend that these groups would require the same field of search. This is not found persuasive because the proteins of group I can have materially different uses than the production of the monoclonal antibodies of group II. The methods of immunotherapy of group VII are independent from the antigens of group I, and the anti-idiotype antibodies of group VII could be produced without the antigen of group I. Consequently, the search for all groups would pose an undue burden upon the examiner.

The requirement is still deemed proper and is therefore made FINAL.

17. Applicants election of species in paper No. 6 is also acknowledged. Applicants elected the UTAA polypeptide species having a molecular weight of 90-100kD. Claims 39, 40 and 46 from elected group I are directed to non-elected species and therefore are withdrawn from consideration. Claims 1, 6 and 11-19 are readable upon the elected species and will be examined at this time.

18. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

19. The disclosure is objected to because of the following informalities: The brief description of drawing 7 (page 10) refers to an SDS-page profile and also refers to an "a" and "b". Drawing 7 contains no "a" or "b", and is a graph, not an SDS-page profile. Appropriate correction is required.

20. The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

21. The specification is objected to under 35 U.S.C. § 112, first paragraph, as failing to adequately teach how to make and/or use the invention, i.e. failing to provide an enabling disclosure.

22. The specification fails to teach substantially pure subunits of UTAA. While a 100 fold purification is described, it is unclear that this constitutes substantially pure material. Applicants have described purified material which is identified only by its reactivity to anti-sera (i.e. western blots) which would fail to show contaminants. This is underscored by applicants' admission on page 36 that silver staining revealed several bands and immunostaining produced only one.

23. The specification fails to teach reagents which are reactive with antibodies which are reactive with UTAA. While a proposal is outlined for the production and identification of anti-idiotype antibodies, the disclosure fails to teach isolation of such compositions. Production of any specific antibody is speculative at best, and in the case of anti-idiotype antibodies even more so.

24. The specification fails to teach vaccine formulations containing cells with UTAA on their surface in addition to either GM-2, GD-2, fetal antigen or melanoma tumor associated antigen in a pharmaceutically acceptable carrier. In addition, it is unclear from the specification exactly what GM-2, GD-2, fetal antigen, and melanoma tumor associated antigen are.

25. The specification fails to teach that the administration of any vaccine which inhibits cancer in the recipient.

26. The specification fails to teach a vaccine containing the composition of claim 1. Nowhere does the specification teach immunization with substantially purified material. Additionally, the specification does not teach that the administration of pure protein results in antibody production against tumor cells.

27. The specification is objected to under 35 U.S.C. § 112, first paragraph, as failing to provide an adequate written description of the invention, failing to provide an enabling disclosure and failing to present the best mode contemplated by applicant for carrying out the invention without complete evidence either that claimed biological materials are known and readily available to the public or complete evidence of the deposit of the biological material.

28. The specification lacks complete deposit information for the deposit of M10, M14 and M101. Because it does not appear that these cell lines are known and publicly available or can be

reproducibly isolated from nature without undue experimentation and because the best mode disclosed by the specification requires the use of these cell lines, a suitable deposit for patent purposes is required.

29. If the deposits were made under the provisions of the Budapest Treaty, filing of an affidavit or declaration by applicants, assignees or a statement by an attorney of record over his or her signature and registration number stating that the deposits have been accepted by an International Depository Authority under the provisions of the Budapest Treaty, that all restrictions upon public access to the deposits will be irrevocably removed upon the grant of a patent on this application and that the deposit will be replaced if viable samples cannot be dispensed by the depository is required. This requirement is necessary when deposits are made under the provisions of the Budapest Treaty as the Treaty leaves this specific matter to the discretion of each State. Amendment of the specification to recite the date of deposit and the complete name and address of the depository is required. As a possible means for completing the record, applicant may submit a copy of the contract with the depository for deposit and maintenance of each deposit. If the deposits have not been made under the provisions of the Budapest Treaty, then in order to certify that the deposits comply with the criteria set forth in M.P.E.P. 608.01(p)(C), items 1-3 regarding availability and permanency of deposits, assurance of compliance is required. Such assurance may be in the form of an affidavit or declaration by applicants or assignees or in the form of a statement by an attorney of record who has authority and control over the conditions of deposit over his or her signature and registration number averring:

(a) during the pendency of this application, access to the deposits will be afforded to the Commissioner upon request;

(b) all restrictions upon the availability to the public of the deposited biological material will be irrevocably removed upon the granting of a patent on this application;

(c) the deposits will be maintained in a public depository for a period of at least thirty years from the date of deposit or for the enforceable life of the patent of or for a period of five years after the date of the most recent request for the furnishing of a sample of the deposited biological material, whichever is longest; and

(d) the deposits will be replaced if they should become nonviable or non-replicable.

30. Amendment of the specification to recite the date of deposit and the complete name and address of the depository is required. As a possible means for completing the record, applicant may submit a copy of the contract with the depository for deposit and maintenance of each deposit.

31. Claims 1, 6 and 11-19 are rejected under 35 U.S.C. § 112, first paragraph, for the reasons set forth in the objection to the specification.

32. Claims 1, 6, 13 and 18 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

33. It is unclear what is meant by "substantially purified" in claim 1. It is unclear what is meant by "reagents" in claim 6. It is also unclear what is meant by "reactive" in claim 6. It is unclear if the term "the cells" of claim 13 finds antecedent basis in "inactivated tumor cells" of claim 11. It is unclear if the term "the polypeptide" of claim 18 finds antecedent basis in "substantially purified antigenic polypeptide subunit" of claim 1.

34. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

35. Claims 1, 6 and 11-19 are rejected under 35 U.S.C. § 102(a) as being clearly anticipated by David M. Euhus et al, 1989. This rejection is being made because the authorship of the reference is different from the inventorship of the instant application. The primary author of the reference is not listed as an inventor of the instant application.

36. Claims 1 and 6 are rejected under 35 U.S.C. § 102(b) as being anticipated by James F. Huth et al, 1981.

37. Huth et al teach the purification of antigens found in the urine of sarcoma patients. The urine is concentrated 100-fold and then affinity purified with immobilized immunoglobulin. As mentioned above, it is unclear what degree of purity is claimed in claim 1. Applicants have disclosed a purification scheme in which the urine is concentrated 100-fold and then applied to a gel filtration column. Alternatively, applicants have disclosed a purification scheme for serum UTAA which employs an ion-exchange step and subsequent gel filtration. It is unclear from the specification which method produces the purest material or what purity levels are achieved.

38. Claims 1 and 6 are rejected under 35 U.S.C. § 102(b) as being anticipated by N.S. Rote et al, 1980.

39. Rote et al describe purification schemes of tumor associated antigens found in the urine. They teach the use of centrifugation and concentration (p. 204) followed by gel-filtration (p. 205).

40. Claims 1 and 6 are rejected under 35 U.S.C. § 102(b) as being anticipated by Francisco X. Real et al, U.S. Patent 4,562,160.

41. Real et al teach the purification of a 90kD glycoprotein tumor antigen. It is unclear if this is the same antigen being claimed in claim 1 of the instant application.

42. Claims 1, 6, 18 and 19 are rejected under 35 U.S.C. § 102(b) as being anticipated by Joseph P. Brown et al, U.K. patent GB 2188637A.

43. Brown et al teach the sequence and purification of a melanoma antigen p97. They teach the fabrication of a vaccinia vaccine containing p97 and the immunization of animals with this vaccine to produce antibodies. It is unclear if the p97 of Brown et al is the same as the 90-100kD protein of the instant application. This seem likely in view of the disclosure of Gupta et al, 1984 abstract of the similarity between UTAA and antigens produced by melanoma cells.

44. Claims 11 and 14-17 are rejected under 35 U.S.C. § 102(b) as being anticipated by R.K. Gupta et al, 1987 abstract.

45. Gupta et al teach the vaccination of melanoma patients with tumor cells, at least one of which (M14 cells) expresses melanoma tumor associated antigen. It seems likely that the cell line also produces UTAA in light of the disclosure of Gupta et al, 1984 abstract. Applicants disclosure supports this assertion (p53-54).

46. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

47. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

48. Claims 1 and 6 are rejected under 35 U.S.C. § 103 as being unpatentable over D.M. Euhus et al, 1988 abstract.

49. It would have been obvious to affinity purify the UTAA using the monoclonal antibody AD1-40F4 disclosed by Euhus et al, 1988 abstract. The motivation for doing so would be the use of the purified material to produce polyclonal antisera to the protein for use in diagnostic procedures.

50. Claim 12 is rejected under 35 U.S.C. § 103 as being unpatentable over J.H. Wong et al, 1988 and R.K. Gupta et al, 1987 abstract.

51. As outlined above, Gupta et al, 1987 abstract disclose the use of melanoma cell lines in vaccine preparations, including M14.

52. Wong et al, 1988 disclose that M10, M14 and M24 are melanoma cell lines and that M10 and M14 are known to express melanoma tumor associated antigen.

53. It would have been obvious to use any known melanoma cell line, including M10, which expresses the appropriate antigens. To do so would confer the appropriate antibody response.

54. Claim 13 is rejected under 35 U.S.C. § 103 as being unpatentable over Wong et al, 1988 and Gupta et al, 1987 abstract as applied to claim 12 above, and further in view of Jean-Claude Bystryn et al, 1986.

55. Bystryn et al disclose that transplantation antigens are undesirable contaminants in melanoma vaccines derived from tumor cells.

56. It would have been obvious to use tumor cells which expressed HLA antigens identical to those found in the recipient in order to avoid an immune response from the recipient to such antigens.

57. Papers related to this application may be submitted to Group 180 by facsimile transmission. Papers should be faxed to Group 180 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989).

The CM1 Fax Center number is (703) 308-4227

58. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Chris Dubrule whose telephone number is (703) 308-4240. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

CD

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GROUP 180